

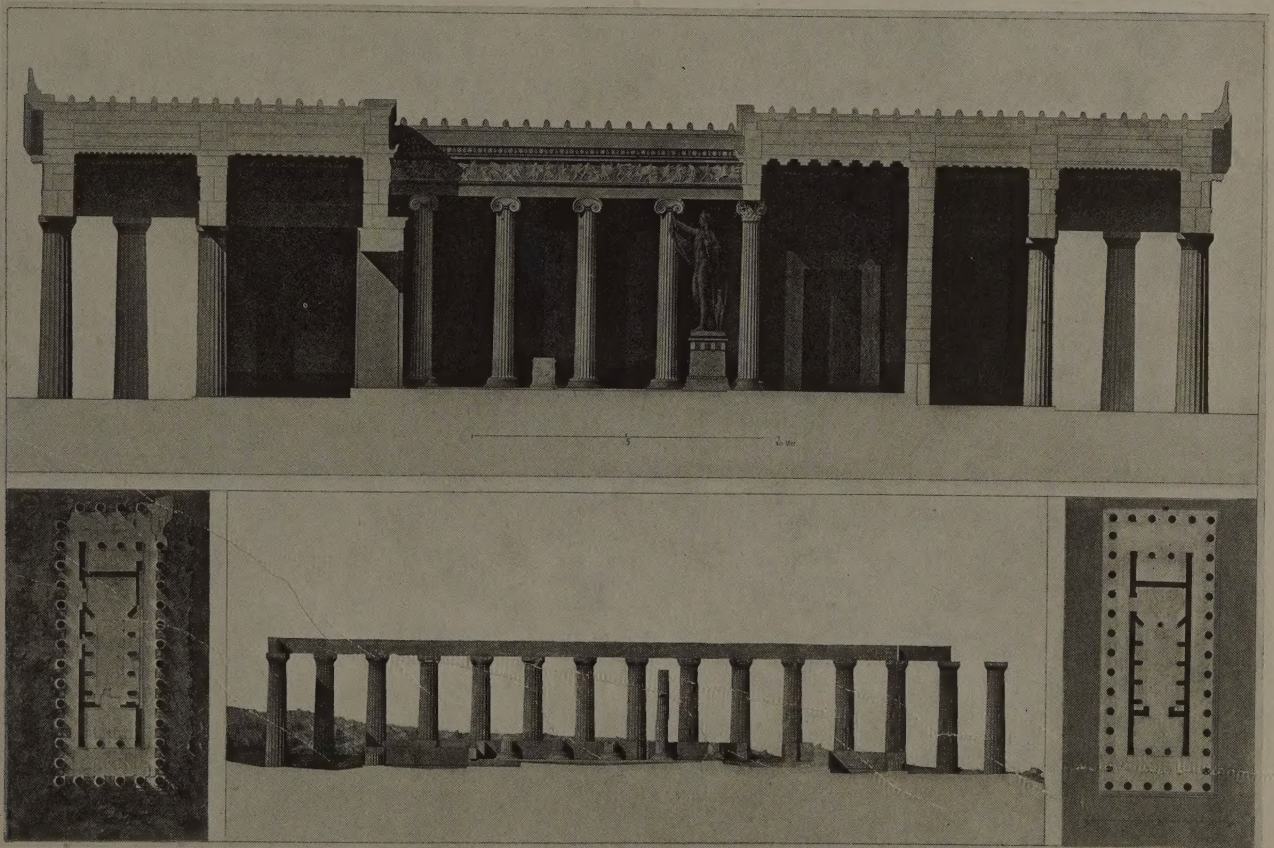
ARCHITECTURE

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TEMPLE OF APOLLO EPIKURIOS AT BASSÆ.

III. The Classic Orders of Architecture

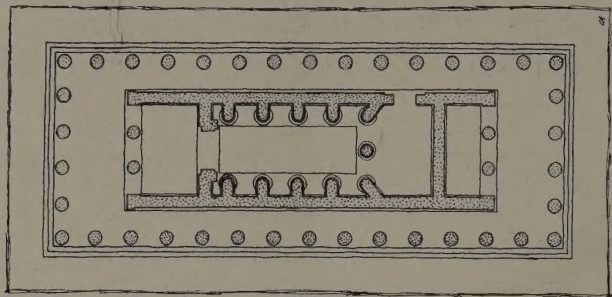
By Egerton Swartwout, F.A.I.A.

THE DORIC ORDER—Continued.

IN the preceding article an attempt has been made to show the probable derivation of the Classic temple from its wooden prototype, and the reasons which may have influenced the Greeks in its development; and now consideration may be given to the use of the Doric order in Classic times, the methods of construction employed, the refinements that were developed, and the possible adaptability of this order to the expressions of modern architecture. Any consideration of the Doric order must include a consideration of the temple of which this order is a part. In reality it is more than a part; it is the building itself. Without the inclosing range of columns in a peripteral temple, there would be, architecturally

speaking, no temple at all; for the Greeks, living essentially out of doors, considered the interiors of their temples and houses as apparently of less importance than the exteriors, in direct contrast to the monumental work in Egypt and in Rome. In their temples the Greeks seemed to have been hampered to an excessive degree by their lack of constructive knowledge, the superimposed orders of the interior presenting an extreme contrast to the monumental simplicity of the exterior. It is true that, owing to the present ruinous condition of these temples it is impossible to make any restoration which could be considered authentic, and, therefore, any such criticism as mentioned above is, of necessity, based, not on what actually

existed in the Classic period, but on the restorations which have been made. It is also true that in some instances, as at Bassæ (Fig. XIV), there is an indication of a more monumental effect than is elsewhere probable; in fact, this remarkable tem-



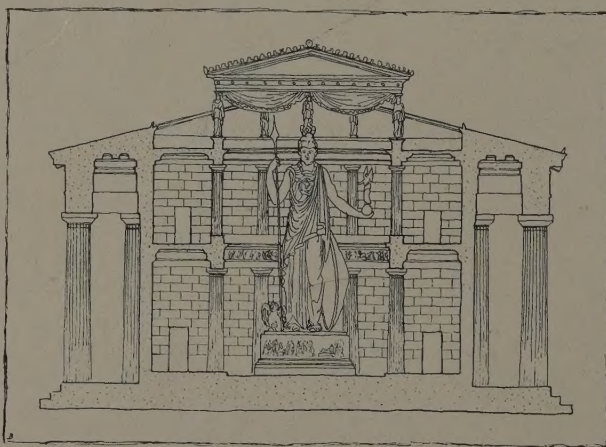
XIV. Plan of Temple of Apollo Epikurios at Bassæ.

ple offers one of the most interesting, yet baffling, problems that have been presented to the architect or archeologist. No adequate explanation has ever been given for the remarkable arrangement of the interior columns, although a suggestion has been made that the connection between these columns and the cella wall might have been intended as a buttress to support a vaulted stone ceiling, the objection to this hypothesis being that no remains of such a ceiling have yet been discovered. It is conceivable that some novel arrangement in wood, the thrust of which was considerable, had been attempted in this temple, and that these buttresses were, therefore, necessary; and yet any such hypothesis does not give any reason for the splaying of these connecting walls in the case of the two end columns. There is evidence to show that this temple, which alone of all the temples of the Greeks was not oriented, was built on the site, and included a portion of the cella of a smaller temple of great antiquity, and that the explanation for the curiously placed door in the naos is that it coincided with the door of the original temple, which faced the east. This, however, does not explain the slanting buttresses or walls of the end columns, nor does the statement of Mr. Ferguson in his monograph on the lighting of temples, in which he refers to the obvious efforts made by the architect to bring the interior columns exactly on the axis of the exterior bays, so that the hypæthral openings suggested in the roof might be symmetrically placed with reference to the exterior. Granting that these columns were so placed, there is no need whatever for the slanting walls, nor for the extreme narrowness of the first bay of the naos.

In default of a better explanation, it has occurred to me that, as Bassæ was evidently a shrine of special sanctity, as was instanced by the preservation of the naos of the older temple and the probably archaic statue which it contained, there may have been some religious significance attached to the arrangement of the naos. The alcoves between the engaged columns may possibly have been altars to various gods, similar to the side altars and chapels in a great cathedral—and indeed such alcoves are indicated in the restoration of the Heraion at Olympia—and these shrines may have been covered with grill work or with curtains, so that to a person standing in the naos, the connecting walls would be unseen, and the columns would appear free standing. It may be that the smaller recesses at the entrance were for other more utilitarian purposes, a possible wooden staircase perhaps, and also that it was for some ritualistic reason desirable to leave open the two end alcoves nearest the statue, and that, therefore, the connecting walls were made to radiate so that to a person standing in that part of the naos to which the public were admitted, these end

columns would also appear free standing. The above explanation is not offered as anything more than a mere suggestion, which possibly is not worthy of serious consideration. In any event, it is regrettable that this very interesting interior treatment was not carried to a greater degree of development. It would seem that perhaps the architect, Ictinos, either on account of certain ritualistic requirements, or because of the fact that this temple was in the provinces, had felt at liberty to abandon the hitherto rigidly adopted arrangement of the Doric temple, and introduced certain innovations which were capable of a much more monumental treatment than had ever before been seen in Greece. Unfortunately, this temple came at the very close of the golden period of architecture. Even in its own case there is not the indication of the same degree of care in construction or refinement of detail that is shown in the Parthenon, which shortly preceded it. From then on the decline was rapid, and we have only this incomplete fragment to show what might have been the ultimate development of the Greek temple.

The plan, then, of the temple and its interior arrangements are so simple and so typically a part of the peculiar requirements of the period, and, therefore, their critical consideration has so little to do with the purpose for which these articles are written, that there are only a few points which need be referred to. The question of the lighting of these temples has been, and still is, a mooted point, a point that probably will never be definitely settled, unless there can be discovered some contemporaneous writings or inscriptions which treat the matter more in detail than those of Vitruvius. Personally, I have always been extremely attracted by the theory advanced by Ferguson. It does not seem conceivable that the Greeks, after having devoted so much care and shown so much skill in the treatment of their temples, would either allow the major portion of the cella to be open to the elements from choice, or would confess themselves unequal to the simple task of providing an adequate roof or the requisite openings to admit light; for it is evident that there must have been some openings other than the doors. The theory has

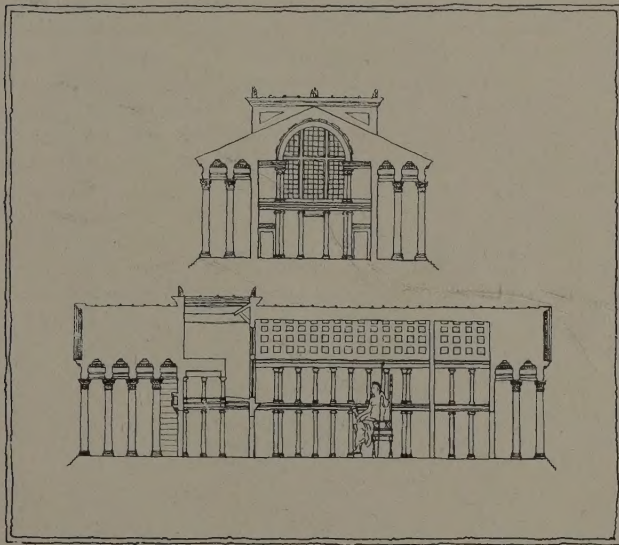


XV. Section of Parthenon showing imagined hypæthral opening - after Canina.

been advanced that a sufficient amount of light filtered in through the thin and semi-translucent marble tiles of the roof. This appears but a poor explanation at the best. The effect could not help but be extremely unpleasant, and if there was enough light transmitted through the tiles to be distinguishable, it would of necessity be cut up into unsightly forms by the shadows of the supporting beams and by the irregularities in

the roof, and would bring the roof beams into a most startling and unpleasant contrast; nor is it conceivable that artificial light was used exclusively, nor that the interior was left in the semi-obscurity of a cave.

The generally accepted hypothesis of a large hypaethral opening in the roof (Fig. XV), by which not only light but rain would be admitted directly into the cella, seems absolutely impossible of belief; that the chryselephantine statues of the divinities and the wonderful veils and votive offerings would all be left exposed to the elements after having been carefully enclosed in a stone temple, is an insult to the architectural ability and common sense of the Greeks. Then, too, the interruption of the ridge and the large hole in the roof would have been most unsightly, as the roofs of the low Greek temples are generally visible; so that if openings were introduced in the roofs they must have been so small as to be imperceptible, the idea of dormers or an attic being architecturally impossible; and as there have been found a few curiously shaped tile which seem to have formed the edge of a small opening in the roof it is probable that the hypaethral openings suggested by Ferguson did exist. This system is certainly suggestive of the highest form of monumental lighting. An effect could be obtained which would tend to increase the apparent size of the naos, and would bring into prominence in a most striking manner the enormous chryselephantine statues with which these

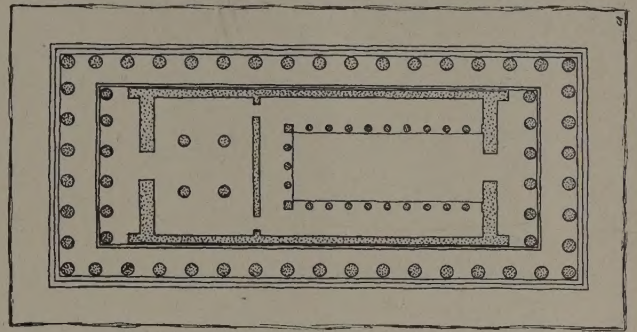


XVI. Section through Temple of Jupiter Olympius showing method of lighting—after Ferguson.

temples were adorned. Similarly, Mr. Ferguson's idea of the lighting of the temple of Jupiter Olympius (Fig. XVI), which is the temple referred to by Vitruvius as having an opening to the sky, is one of the most magnificent schemes for lighting such an interior that can well be imagined. The admission of light into the naos from a great window over the entrance, so that the light falls from an unseen source directly upon the statue or shrine, would unquestionably produce an effect equalled only by that in the hypostyle hall at Karnac.

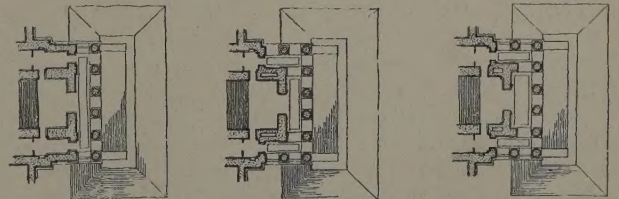
One other point that is extremely interesting, and as far as I know, has not been before noticed, is the curious projection of the walls of the pronaos in the Parthenon and elsewhere. The effect, when viewed on plan (Fig. XVII), is extremely peculiar, but has been generally accepted as a survival of the primitive form of the temple in antis. The real reason for this projection was called to my notice in a rather interesting manner. In the development of the plan of a large monu-

mental building, it was found necessary to project the hexastyle portico considerably further from the building than had



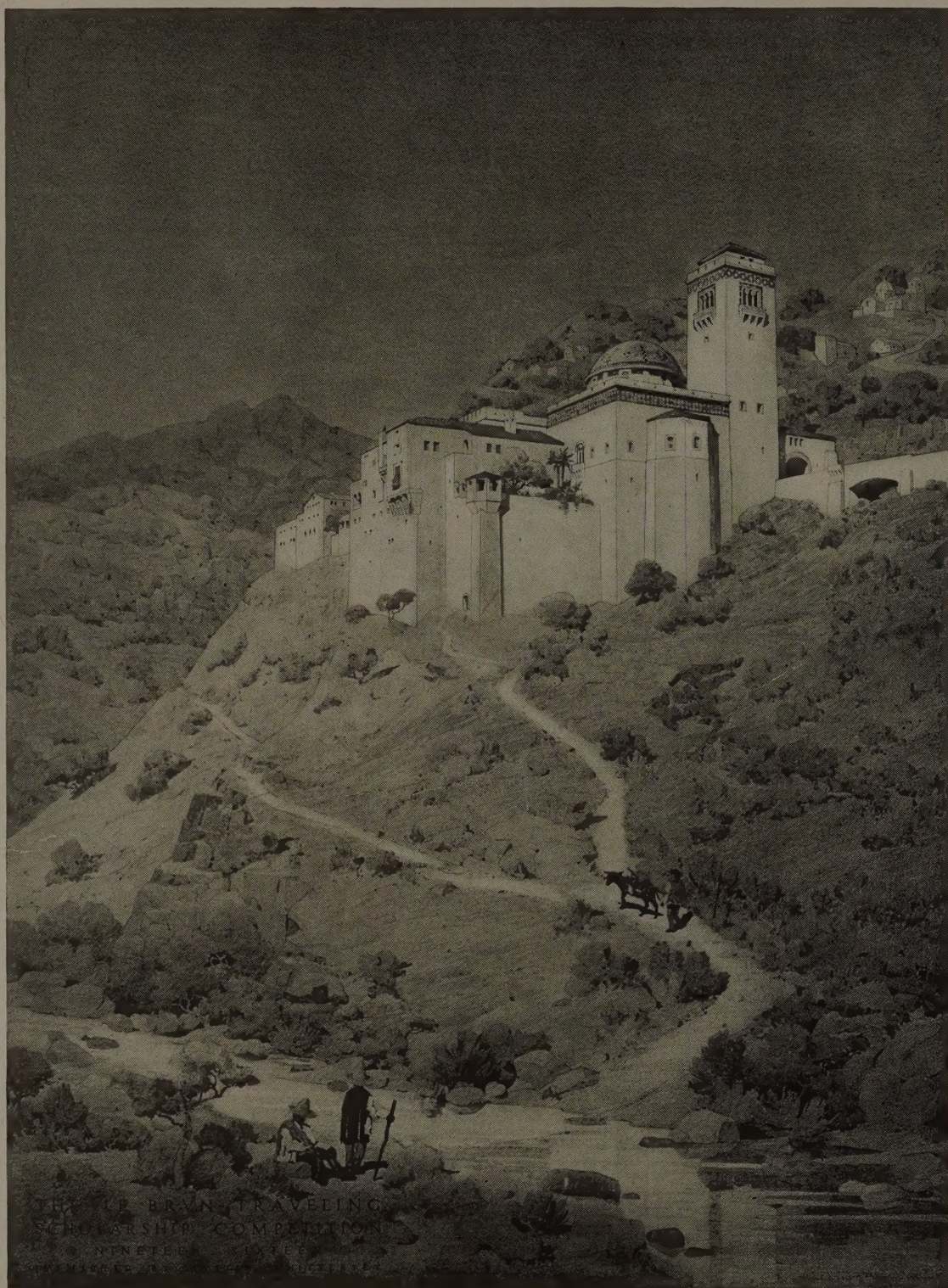
XVII. Plan of Parthenon.

been originally intended, in order to accommodate a monumental flight of steps which led to the main story above the portico level. (Fig. XVIIIa.) In studying this effect from a small scale model in plastaline, it was found that this projection was rather unpleasant and clumsy, and as the staircase was only in width equal to the three central bays, it was found possible by the addition of two more columns on the wings to continue this portico back to the face of the building, leaving the vestibule for the stairs projecting under the portico in a manner similar to the cella of a Greek or Roman temple. (Fig. XVIIIb.) The solution seemed on paper a happy one, but when tried on the model the effect was found to be not entirely satisfactory. The vestibule or cella wall ending in a square pilaster at each corner had a most unpleasant and box-like appearance, which was extremely noticeable. This effect was puzzling to me, because I felt the form itself was, by precedent, correct, and this led to a critical examination of the plans of various temples. I then noticed that in all cases where the pronaos was not treated with columns in antis the flank wall of the pronaos projected a considerable distance beyond the wall of the naos itself, and it occurred to me that this might have been done to get rid of the box-like feeling which was so objectionable in the little model. This idea was immediately applied to the model, the wall of the vestibule pushed back so as to leave a projection of between four and five feet, and it was found to answer the purpose exactly. (Fig. XVIIIc.) The box-like appearance immediately disappeared, and the large door fell into its proper relations with the portico in front. I also found that the effect of shadows was greatly enhanced by this unusual arrangement, and that the pilaster which formed the original corner could be considerably reduced in width on the flank side of the vestibule wall; in other words, instead of a pilaster, it became an anta. This simple and practical experiment convinced me more than ever that in the development of their temples the Greeks must have made extensive use of models both at



XVIII. Development of Portico, Missouri State Capitol.

a small scale and doubtless at the size of execution. We know that they were familiar with the use of stucco, and undoubtedly the models were made in that material.



Prize. Perspective.

THE LE BRUN TRAVELING SCHOLARSHIP COMPETITION.

Austin Whittlesey, New York.

The Le Brun Traveling Scholarship

This scholarship, which was founded in the year 1910 by Pierre L. Le Brun, Esq., constitutes one of the most sought for prizes open to draughtsmen and young architects on this side of the water. The Deed of Gift demands of the successful competitor that he shall spend six months abroad, and provides the sum of one thousand dollars for this purpose.

THE third biennial competition for the Le Brun Traveling Scholarship has resulted in the awarding of the scholarship itself to Austin Cruver Whittlesey of New York, with honorable mentions, given in the order named, to Burnham Hoyt of New York, Ernest E. Weihe of San Francisco, and Robert Pallesen of New York.

This scholarship, which was founded in the year 1910 by Pierre L. Le Brun, Esq., constitutes one of the most sought for prizes open to draughtsmen and young architects on this side of the water. The Deed of Gift demands of the successful competitor that he shall spend six months abroad and provides the sum of one thousand dollars for this purpose. It is open to any architect or architectural draughtsman, a citizen and resident of the United States, not under twenty-three or over thirty years of age, who shall, for at least three years have been either engaged in active practice, or employed as an architectural draughtsman, and who has not been the beneficiary of any other traveling scholarship.

Every competitor must engage to remain, if successful, at least six months abroad, and to devote well and truly that

length of time to travel and the study of architecture otherwise than by entering any school or atelier or attending lectures, it being intended that the benefit derived from this traveling scholarship shall supplement school or office experience.

The successful competitor is also required to write from time to time, but not less than once every two months, to the New York Chapter of the American Institute of Architects, giving an account of the employment of his time.

The committee appointed by the executive committee of the New York Chapter of the American Institute of Architects to have the matter of this year's competition in charge consisted of Aymar Embury II, Harrie T. Lindeburg, I. N. Phelps Stokes, Alexander Trowbridge, and Bertram G. Goodhue, Chairman.

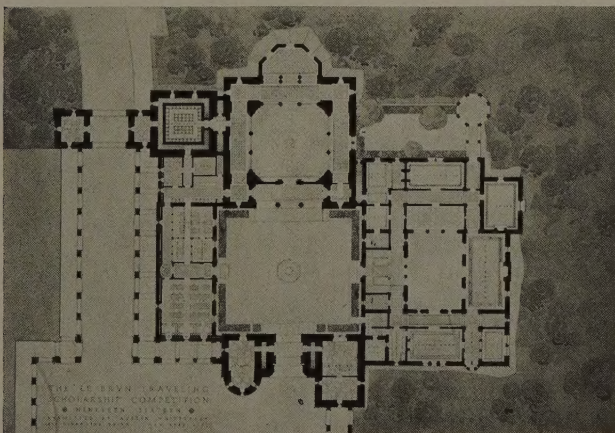
In the belief that to be practical a program need not be dull, or even necessarily workaday in character, and that in a matter of this kind every incentive should be given to competitors to bring forth what originality and poetry in them lies, this year's committee formulated the following program:



Prize. Section.

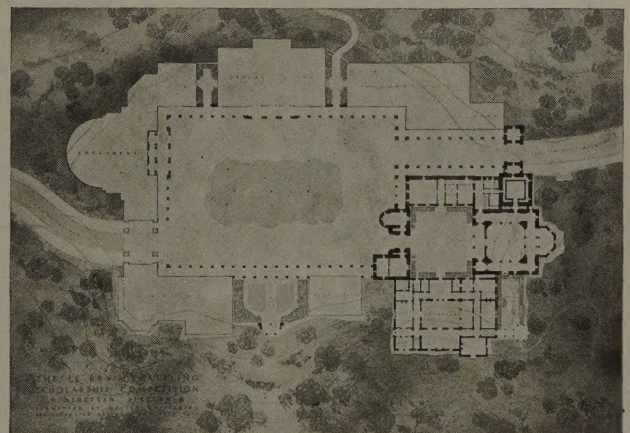
Austin Whittlesey, New York.

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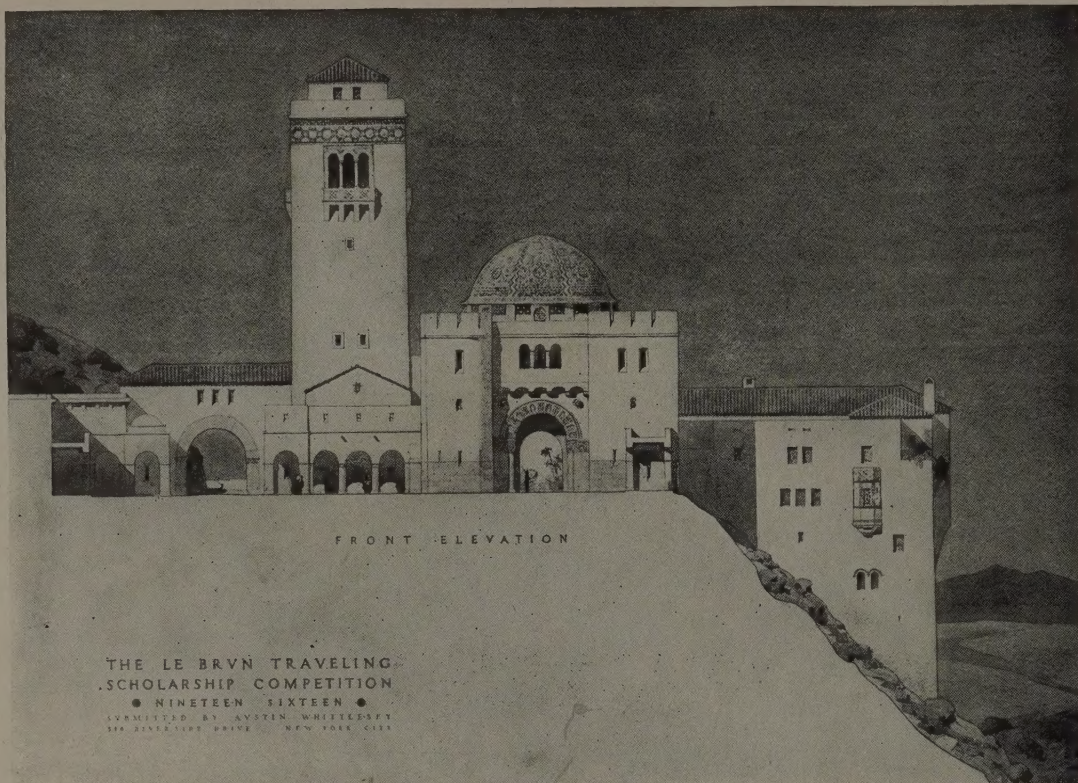
Prize. First Floor Plan.

Austin Whittlesey, New York.



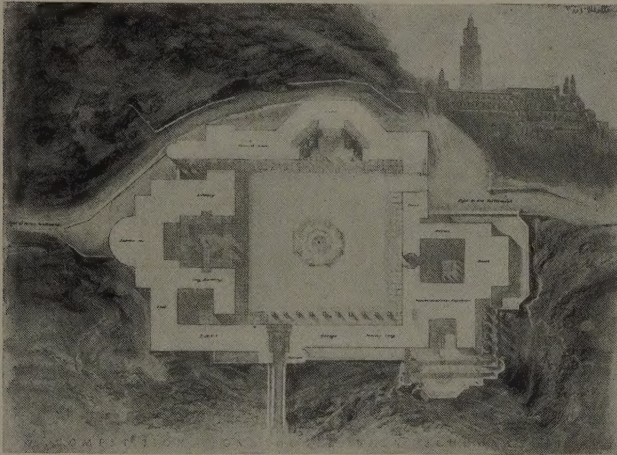
Prize. Plot Plan.

Austin Whittlesey, New York.



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Recognizing that, unlike those lands where one definite architectural style has arisen and reached perfection, the physical characteristics of these United States of America are too

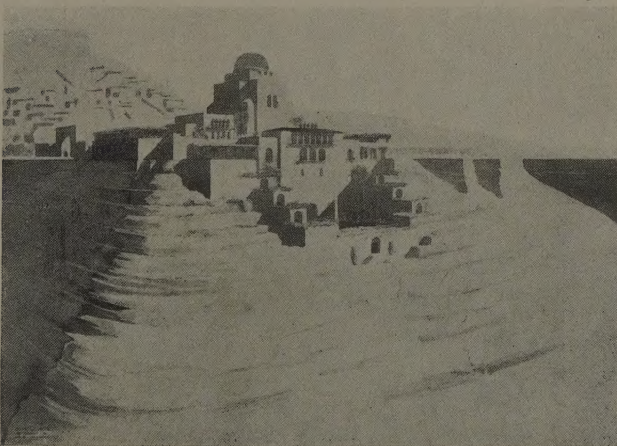


First Mention. Plot Plan. Burnham Hoyt, New York.

varied to permit—or even possibly make desirable—such a happening, the committee has assumed the discovery of a great new gold and silver mine in the Southwest. At a little distance from the actual entrance to the mines themselves, a settlement has sprung up consisting of shanties, etc., of the worst possible description.

The Directors of the company, to whom the mines belong, being cultivated and traveled gentlemen, and knowing that the mines' production will eventually make the settlement a considerable town, have decided in advance to determine its general character, the layout of the streets, the placing of its principal buildings, etc., etc. The Directors hold that the miners' surroundings, to be tolerable, must be beautiful as well.

The tract in the mining company's possession is about fifteen miles square, across the northeastern corner of which runs a range of serrated and fairly high mountains from northwest to southeast, the balance of the tract being almost wholly a desert of the flattest and most uncompromising description. On the southwestern slope of the range of mountains, at the foot of a canyon through which runs a small stream, is the town-site. On a small shelf of one of the foothills looking down

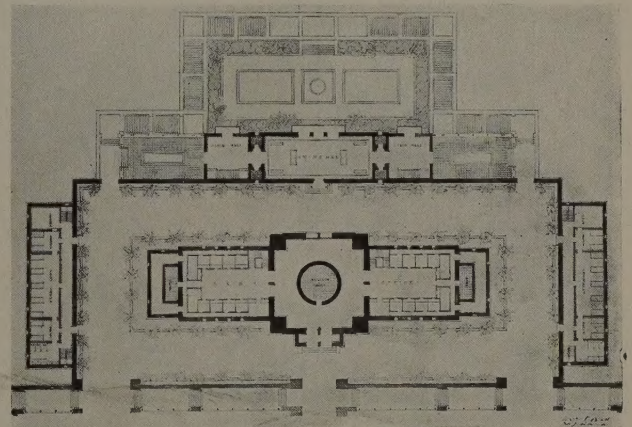


Second Mention. Perspective. Ernest Weihe, California.

into the canyon will be the Plaza surrounded with buildings of more or less importance. At one corner of the Plaza, the mining company has determined to erect the first of these various buildings,

Since the location is very near the border line of Mexico, a country with which our relations are at present somewhat strained, they believe that the archives, bank, bullion-vaults and the like should be housed in a building capable of being stiffly defended. The Directors also believe that the resident superintendent, a person of considerable importance who is also one of the most cultivated of the Directors, and with a fairly large family, should be housed in this building for its and his greater protection. Therefore, it is suggested that the building contain one or more courtyards—planted or not at the discretion of the competitor—a guard room, small arsenal, a porter's lodge, quarters for the various other necessary attendants, a pay office with provision for a certain number of clerks and with one or two series of windows through which the various employees will receive their wages. Though, of course, the water supply of the town will be used under ordinary circumstances, the building should possess its own auxiliary supply in the shape of an artesian or natural well.

The Directors wish the architecture of the town to suggest somewhat the ethnic history of its surroundings; to recall to mind, in other words, the fact that before the American occupation the country had been traversed by the Spaniards who, in their progress, left many memorials of their occupation; that before the Spaniards, it had been inhabited by the Pueblo Indians, themselves no mean builders even before the Spaniards came, as the still standing ruins of their work attest.



Second Mention. First Floor Plan. Ernest Weihe, California.

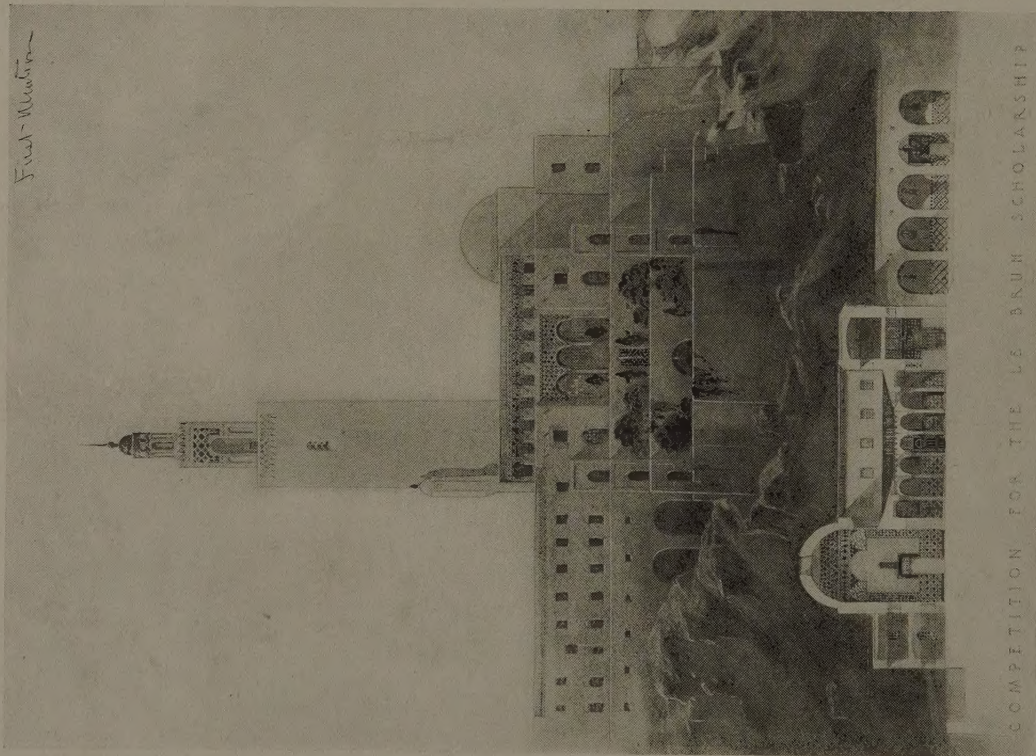
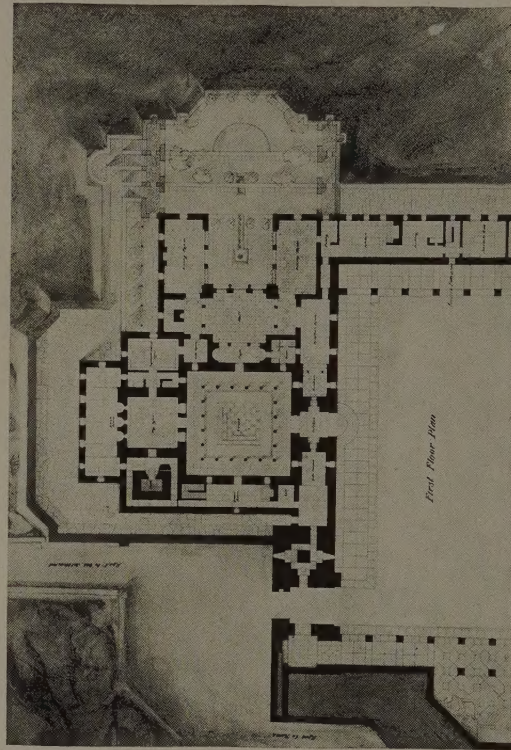
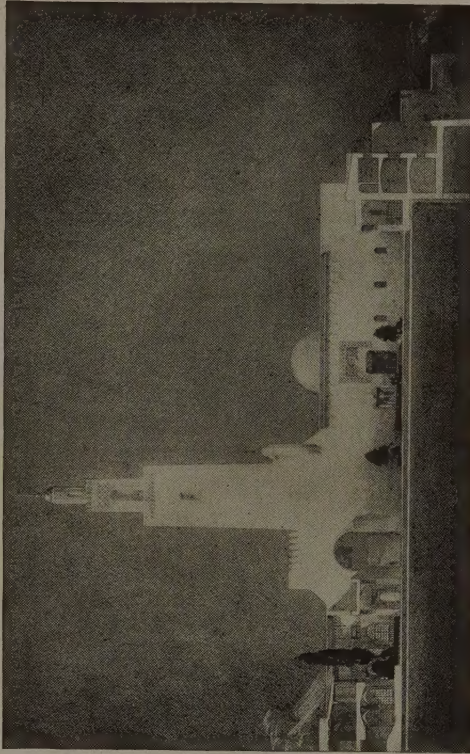
But the Directors believe that the architecture of the Pueblo Indians, when modified to suit modern requirements must of necessity lose its character, and also that the Spanish work existing in Mexico and certain portions of the Southwest—though better than Anglo-Saxon on this continent, in that it is far more suited to the climate and general character of the Southwest—is still less adapted to desert conditions than the work done by the Moors in North Africa after their expulsion from Spain. In short, though not wishing to dictate at all the style or character of the building, they believe as individuals and as a body, that the walls should be thick, the openings small, that courtyards are desirable, and what little architectural ornament is to be used should be produced chiefly by means of glazed and colored tile instead, as is usual with us, of carved stone, terra cotta or cast concrete.

This building, which is the architectural problem to be faced by the competitors, must be shown by the following drawings, and these only.

1. Block plan at a scale of 1/16" to the foot.

This plan to include not only the building itself, but in outline or block, its surroundings as well, suggesting a portion of the Plaza and certain of the adjoining streets and buildings.

(Continued page 261)



First Mention. Perspective, Elevation and Plan.

THE LE BRUN TRAVELING SCHOLARSHIP COMPETITION.

Burnham Hoyt, New York.

(Continued from page 259)

2. A completely worked-out ground floor plan of the building at a scale of $\frac{1}{8}$ " to the foot.

3. A completely worked-out second story, or second story and roof plan, at a scale of $\frac{1}{8}$ " to the foot.

4. A front or Plaza elevation, $\frac{1}{8}$ " to the foot.

5. A side elevation, $\frac{1}{8}$ " to the foot.

6. A longitudinal or transverse section, $\frac{1}{8}$ " to the foot.

7. A longitudinal or transverse section, $\frac{1}{8}$ " to the foot.

This second section may be omitted at the discretion of the competitor.

8. A perspective.

Beyond the fact that the mounts of these drawings must not exceed 4'x3', and that the walls in the two floor plans should be pochéd, the designer is at liberty to show as much or as little as he pleases and to work in whatsoever medium suits him best.

The author shall sign his drawings with his full name and address, and this must be accompanied by an attestation, executed before a notary, that both conception and drawings are his individual work. The competitor may, at his discretion, send with the drawings a brief typewritten description also signed.

Of forty applicants, eleven qualified, and for the purpose of judging the eighty-eight drawings received, the committee added to its number two others, William M. Kendall and Philip Sawyer.

The average of excellence, both of design and draughtsmanship was remarkably high, practically every competitor bringing to the problem some quality that caught the interested attention of the jury.

In addition to the awarding of the prize itself, the Deed of Gift of the scholarship requires that the jury award three mentions, and of the prize winning and mentioned designs in this number of ARCHITECTURE will be found reproduced six of the prize winner's, four of the first mentioned, and two each of the second and third mentioned drawings, serving to show from what a different point of view and in how different a spirit the various competitors approached the problem.

It was precisely this difference of point of view the committee hoped would be elicited by this year's programme.

Of the eleven sets of drawings submitted the committee were unanimous in feeling that the prize winning and first mentioned designs represented an ability, both in design and draughtsmanship, distinctly superior to those that followed. It is indeed, divulging no very closely guarded secret to say that Mr. Hoyt's design came very close to being the successful one.

Though there was nothing in the wording of this year's problem demanding that the competitors work in some form or modification of the Saracenic style, it was clearly so inter-

preted by the competitors generally. Neither Mr. Whittlesey nor Mr. Hoyt, however, showed themselves slavish in their copying of the elements of this style, though Mr. Whittlesey's dome, covered with glazed and colored tile, recalled those of Cairo and the less well known but infinitely more beautiful ones of Persia, while Mr. Hoyt's campanile is strongly North African in character.

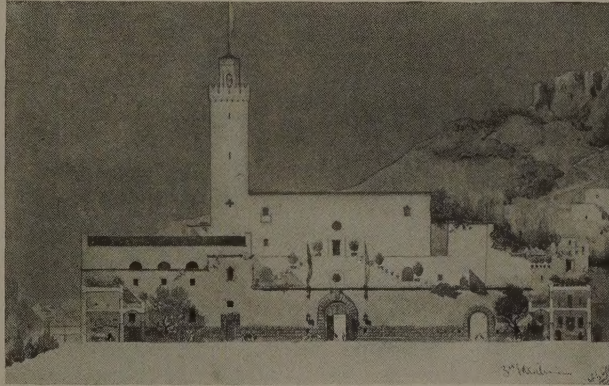
Chief among Mr. Whittlesey's drawings was the perspective, very ably and beautifully rendered in water color, showing not only the building that formed the problem itself, but also a very considerable amount of its surroundings. It is interesting to know that a large part of Mr. Whittlesey's life has been spent in the West, which accounts for the fidelity of his rendering to the sun-baked and shrub-spotted mountains

and canyons of the Southwest. The balance of Mr. Whittlesey's designs were rendered in full color and very much the same fashion as his perspective. Mr. Hoyt, taking advantage of the extreme latitude in rendering allowed, even encouraged, by the program, elected a simple but remarkably beautiful yet labor-saving type of monotone. Though a wash of India ink undoubtedly formed the basis of his drawings, this was overlaid and reinforced by a lavish use of crayon or charcoal with the lights removed by means of an eraser. Instead of following the usual convention and casting his shadows at an angle of 45°, Mr. Hoyt chose to assume the source of light as immediately in the face of the spectator. By this device he not only saved himself a great deal of time and labor, but succeeded in producing a very remarkable effect indeed.

Studying the various plans in detail the committee felt that Mr. Whittlesey had paid greater deference to the problems inherent in the problem than any of the other competitors. For instance, the covered "portales" protecting the pay window was a feature to be found in his design alone, while

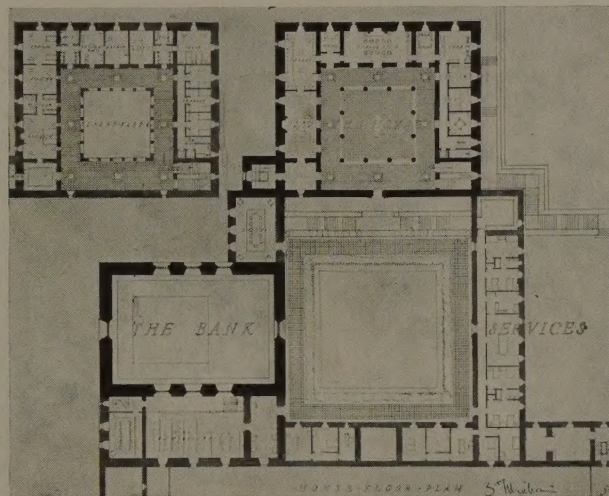
Mr. Hoyt's plan suffered from the fact that if built it would be impossible to forestall the collection of a disaffected mob in the very bank and pay office itself.

On or about the first of the year the successful competitor will sail for Gibraltar, spending some weeks in and about such towns as Tarifa, Seville, Cordova, Granada, Malaga and Ronda, studying in these places the work of the Moors before their expulsion from Spain. From Spain he intends crossing to Tangier, visiting Tetuan and Fez. In the troubled state of the world today, it is doubtful whether he will be able to proceed eastward by land, following the Riff Coast; if not, he will return to Gibraltar, and go from there by steamer to Oran, from which place he will visit such towns as Tlemcen, Algiers, Constantine, Biskra, Tunis and Kairouan.



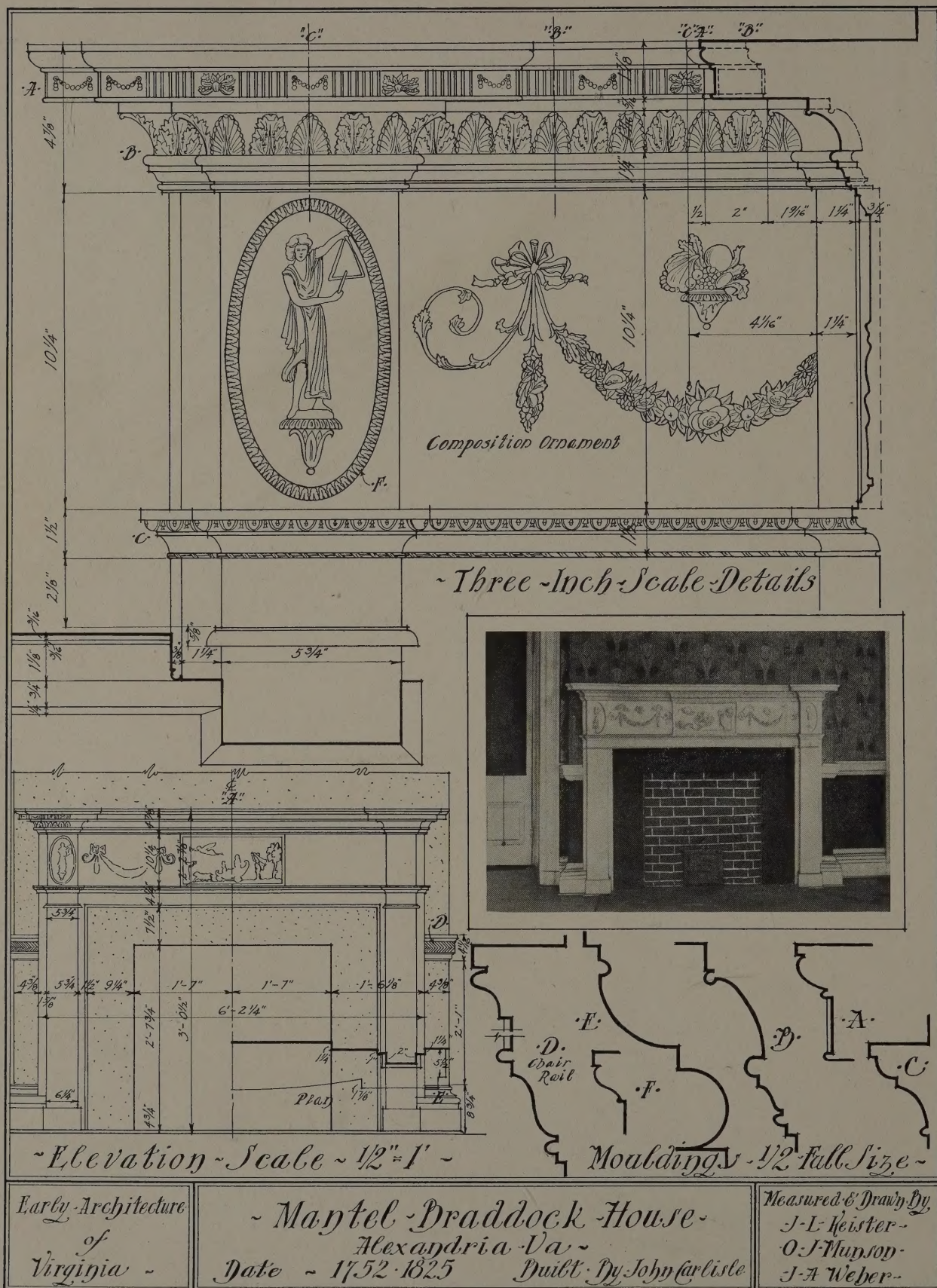
Third Mention. Elevation.

Robt. Palleson, New York.



Third Mention. First Floor Plan.

Robt. Palleson, New York.



XVIII. Engineering for Architects

By DeWitt Clinton Pond, M. A.

Mr. Pond has charge of the practical course in Architectural Engineering at Columbia University. He is the author of "Engineering for Architects" recently published in book form. This series, started in July, 1916 ARCHITECTURE, is a continuation of the previous series concluded in the issue of June, 1915.

WHEN it is necessary to design a foundation for an exterior column or pier that is located near a lot line, it is often impossible to do so without making a footing large enough to form a base for both the exterior and an interior column. The reason for this is that no portion of the footing can extend beyond the lot line, and also that if the footing were used for a base of the exterior pier only, and made long enough to cover the proper area, it would interfere with the footings under the adjacent columns. It is obvious that the width of the footing in this case would be limited as the center line of the pier must come on the center line of the footing, and the width could only be twice the distance from the center of the pier to the lot line.

It is therefore necessary to extend the footing back, toward the interior of the lot, and, in order to keep the center of downward pressure directly over the center of gravity of the footing, it is necessary to counterbalance the weight carried down by the exterior pier by the weight carried by the interior column. The footing may be designed in the shape of a rectangle, or in the shape of a trapezoid (Fig. 98), the propor-

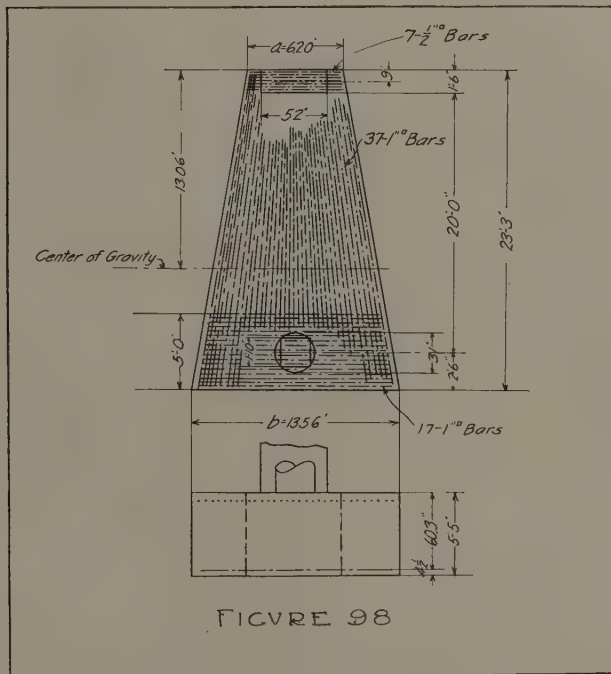


FIGURE 98

tions of which are governed by a formula that will be given later. Probably the best method of studying such a condition would be to investigate an actual example.

Suppose that it will be necessary to design a base for an exterior pier that measures 18 inches wide and 52 inches long, and which carries a load of 500,000 pounds. The pier will be considered as having one of the 52 inch sides located on the lot line, and as its width is 18 inches, the center of gravity

will be 9 inches back of the lot line. There will be another column, on a line with the exterior pier, but at a distance of 20 feet between the center of the pier and the center of the column, which will also be made to rest upon this footing. This column will be considered as a typical interior column on which there will be a total load of 800,000 pounds.

It is customary to assume a distance between the center of the interior column and the innermost edge of the footing. In the present case the distance will be made 2 feet and 6 inches. The total length of the footing will be, therefore, the sum of 9 inches, 20 feet, and 2 feet and 6 inches, making a total of 23.25 feet.

In order to find the area of soil under the two columns, it will be necessary to understand what is meant by Section 233, subdivision 6, of the New York Building Code, in which the following statement is made: "In proportioning the areas of footings for any building the dead loads alone shall be considered."

This requirement makes it necessary to determine the area of a footing under a typical interior column, and to divide the dead load by this area. Once having determined the dead load carried per square foot under a typical interior column, it is necessary to proportion the other footings by dividing their respective dead loads by this amount. This division will give the number of square feet that must be covered by each footing under consideration. In other words, if 800,000 pounds is the load carried to the typical footing by an interior column, of which 500,000 pounds is live and 300,000 pounds is dead load, and if 60,000 pounds is the weight of the footing itself, it will be necessary to divide $300,000 + 60,000 = 360,000$ pounds by the area of the footing, and the result will be the dead load per square foot carried by the soil under the footing. If the area of soil is 107.53 square feet the result will equal $360,000 \div 107.53 = 3,350$ pounds of dead load carried per square foot.

The exterior column, under consideration, has a total load of 500,000 pounds, of which only 150,000 pounds is live load and 350,000 pounds is dead load. As has been stated, the other column to be carried by the footing will be considered as a typical interior one and the dead load will be 300,000 pounds as stated above, and, if the weight of the footing is considered as 120,000 pounds the total dead load will be:

300,000 pounds brought by interior column
350,000 pounds brought by exterior pier
120,000 pounds weight of footing
770,000 pounds total

If 3,350 pounds of dead load may be carried by each square foot of soil, the area of the footing must be $770,000 \div 3,350 = 230$ square feet.

The next point to be considered will appear simple enough to an engineer, but may present difficulties to one who is not familiar with engineering matters. The whole problem of the design of footings is to have the center of downward pressure directly over the center of gravity of the footing. If

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both the column and the pier carried equal loads, the center of downward pressure would be directly in the center between them. But in the present case the column carries a load of 800,000 pounds, and the pier only 500,000 pounds, and the center of pressure will be nearer the column than the pier. In order to find the exact location of this point it is customary to make moments around a point conveniently located. This point will be considered to be on the lot line and the conditions that will govern the taking of moments can be seen in Fig. 99.

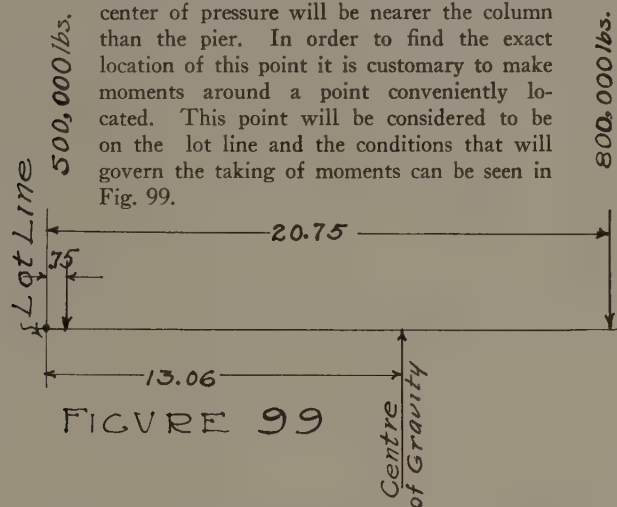


FIGURE 99

The center of the pier is located 9 inches, or three-quarters of a foot, away from the lot line, and the center of the column is 20.75 feet away. The loads are 500,000 pounds and 800,000 pounds as shown. The moment will be as follows:

$$\begin{array}{r} 500,000 \times .75 = 375,000 \\ 800,000 \times 20.75 = 16,600,000 \\ \hline 1,300,000 \qquad 16,975,000 \end{array}$$

The distance from the lot line to the center of gravity is found by dividing the sum of the moments—16,975,000—by the sum of the loads—1,300,000, or $16,975,000 \div 1,300,000 = 13.06$ feet.

So far the dimensions of the footing, that have been determined, are 9 inches from the lot line to the center of the pier, 20.75 feet from the lot line to the center of the column, 23.25 feet from the lot line to the inner end of the footing, and 13.06 feet to the center of gravity of the footing. The area is 230 square feet.

Referring to Fig. 98, it will be noticed that the length of one of the parallel sides of the trapezoid is designated as a and the length of the other as b . These two dimensions of the footing still remain unknown. In order to find these two formulas, given below, are employed.

$$a = \frac{6Ax}{l^2} - \frac{2A}{l}$$

$$b = \frac{6Ay}{l^2} - \frac{2A}{l}$$

y is the distance from the short side— a —to the center of gravity of the trapezoid, and in this case is 13.06 feet. x is the distance from the center of gravity to the long side and in the present case is given by subtracting 13.06 from 23.25 feet. l is the length of the footing, or 23.25 feet, and A is the area, 230 square feet.

By substituting the values given above in the formulas, the lengths a and b are determined.

$$a = \frac{6 \times 230 \times 10.19}{23.25 \times 23.25} - \frac{2 \times 230}{23.25} = 6.20 \text{ feet}$$

$$b = \frac{6 \times 230 \times 13.06}{23.25 \times 23.25} - \frac{2 \times 230}{23.25} = 13.56 \text{ feet}$$

In this manner the dimensions of the footing are deter-

mined and the next step is the determination of the reinforcing. There are two methods of placing the steel in such a footing. The first is to run the lower bars across the trapezoid, parallel to the parallel sides, and grouped under each column, and the upper bars in a radiating manner as shown in Fig. 98. The other method is to run the lower bars, equally spaced, from one end of the footing to the other, and simply running the upper bars between the two columns. This arrangement is shown in Fig. 100. In case the first method is used the bending moment—the tendency to bend the beam—is determined by employing the formula $M = \frac{1}{8}W(l - a)$, which was referred to in the last article. l will be either 6.2 feet or 13.56 feet, and W either 500,000 pounds or 800,000 pounds. a for the pier will be 52 inches and for the column seven-tenths of 31 inches, or 21.7 inches. This will equal 1 foot and 10 inches, which is the length of the side of the "equivalent square" referred to in Article XVI.

The formula then becomes, for both conditions,

$$M = \frac{1}{8} \times 500,000 \times (6.2 - 4.3) = 118,750 \text{ ft. lbs.}$$

$$M = \frac{1}{8} \times 800,000 \times (13.56 - 1.83) = 1,173,000 \text{ ft. lbs.}$$

and, as the latter bending moment is the larger, this will be taken for the purpose of determining the depth of the footing. The design will be the same as for a beam having a length of 13.56 feet and a width of 5 feet. This latter dimension is taken as the width because the distance from the center of the column to the inner edge of the footing is 2 feet and

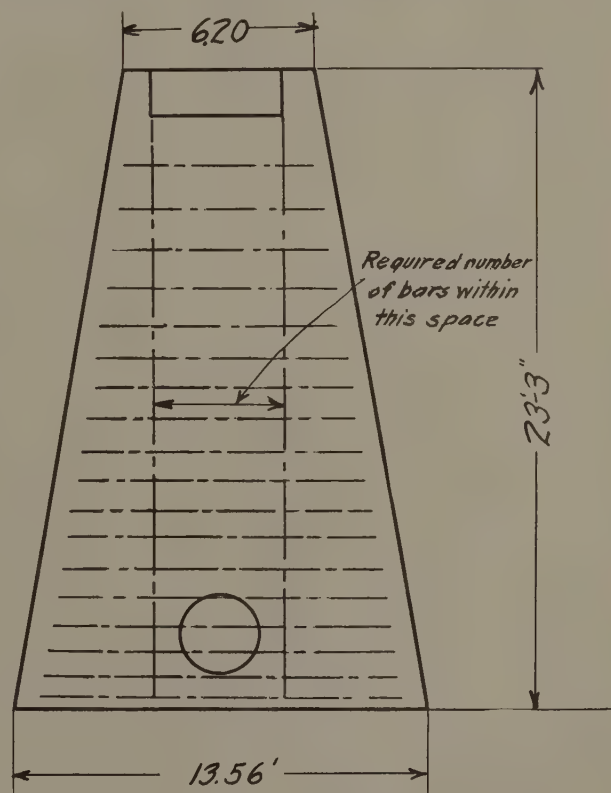


FIGURE 100

6 inches and the width of the beam will be twice this dimension. The depth will be found in the following manner.

$$d^2 = \frac{1,173,000 \times 12 \times 8}{5 \times 1,462.5 \times 7} = 2,200$$

$$d = 46 \text{ inches.}$$

(Continued page 267)



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This depth must be checked for shear. The particular type of shear under consideration will be known as "punching shear" and has been discussed in Article XVI. The column is regarded as having a tendency toward punching a hole directly through the footing. The hole will be circular, having diameter and circumference equal to those of the column.

This column, being 31 inches in diameter, will have a circumference of 97.39 inches and an area of 5.24 square feet.

The total pressure of the columns upon the footing is 1,300,000 pounds. The total area of the footing will be $(13.56 + 6.20) \times 23.25 \div 2 = 229.7$ square feet. It may be well in passing to note that the area was found from the actual dimensions of the footing, which were determined by means of the formula. This area checks with the 230 square feet that were found to be necessary. The upward pressure per square foot will be $1,300,000 \div 230 = 5,660$ pounds.

The upward pressure due to the soil, directly under the column, will be $5.24 \times 5,660 = 29,660$ pounds. The downward pressure on the column is 800,000 pounds, and the total pressure, producing shear, will be $800,000 - 29,660 = 770,340$ pounds. Seven-eighths of the depth, multiplied by the circumference, and by 150 pounds—the shearing value of reinforced concrete—should equal this pressure.

$$d = \frac{770,340 \times 8}{97.39 \times 150 \times 7} = 60.3 \text{ inches.}$$

This depth is greater than that found for the bending, and will therefore be taken as governing the design of the footing. As there must be 4 inches of concrete under the steel the total depth will be 5 feet and 5 inches.

The tendency of the pier to produce punching shear will not be investigated as the distance around the pier is greater than the circumference of the column, the load is less, and the area is greater, thus causing more upward pressure from the soil to counteract the small downward load. For these reasons the depth found to be great enough to withstand the punching shear of the column will be considered as great enough to withstand that of the pier.

It is obvious that the bending moment and punching shear will be considerably less under the pier than they will be under the column, and engineers sometimes design such a footing as is now being considered with a sloping top in order to secure a greater depth under the interior column. In the present case the depth will be kept the same throughout the footing.

The depth having been found, the next step is to determine the area of steel necessary, both under the column and under the pier. This is governed by the bending moments at each point, which have been found to be 1,173,000 and 118,750 foot pound respectively. By multiplying by twelve, these moments can be found in inch pounds, and the result will be 14,076,000 and 1,425,000 inch pounds. The total stress in the steel— S —multiplied by seven-eighths of the depth should equal the tendency to bend the beam.

$$S \times \frac{7}{8}d = M$$

$$S = \frac{8M}{7d}$$

$$S = \frac{14,076,000 \times 8}{60.3 \times 7} = 267,000 \text{ pounds}$$

The allowable stress for steel is 16,000 pounds per square inch, and it will be found that it will be necessary to supply seventeen one inch square bars to make the necessary area found by dividing 276 by 16.

The bending moment under the pier was found to be 1,425,000 inch pounds and the stress in the steel at this end

of the footing can be determined in the same manner as given above.

$$S = \frac{1,425,000 \times 8}{60.3 \times 7} = 27,000 \text{ pounds}$$

$$27,000 \div 16,000 = 1.7 \text{ square inches.}$$

It will be noticed, by referring to the figure (Fig. 98) that there is little space between the ends of the piers and the outside of the footing at the small end. In this space there will not be room enough to allow the concrete to get a good grip on the bars. It will therefore be necessary to hook the bars at their ends, and, as it is difficult to hook bars that are greater than one-half inch square, this is the size of bar that will be used under the pier. There will be seven bars of this size necessary.

The next step will be the design of the steel which runs the long way of the footing, and which is placed on the top of the footing. In order to understand the design of this top steel it must be understood that the point at which there will be the greatest tendency to bend the footing up between the columns—bending caused by the upward pressure of the soil—is the point where the shear is zero, or, where the upward load and downward load is exactly the same.

In the present case, the upward load on the outer portion of the footing must equal 500,000 pounds, which is the downward load due to the pier. And in like manner, the load on the inner portion must equal 800,000 pounds. There will be a line dividing these two portions, and at this line will be the greatest tendency to bend the footing. To determine the maximum tendency it will be necessary to locate the position of this line, and to find the moments around it.

The pressure of the soil over a square foot of the footing was found to be 5,660 pounds. The pressure due to the pier is 500,000 pounds, and the area of footing that will have an upward pressure of 500,000 pounds exerted over it will be $500,000 \div 5,660 = 88.4$ square feet. And in a similar manner it will be found that the area necessary to support a pressure of 800,000 pounds will be 141.3 square feet. It will be noticed as a check that by adding 88.4 and 141.3 the total area of the footing is given. On a line, separating these two areas one from the other, the greatest tendency toward bending is found. The exact location of this line, however, is difficult to determine. The only method that can be given in this article is that of trying several positions.

Let it be assumed that this line of no shear is located 12 feet away from the inner end of the footing. It will be necessary to first find its length, and this is done by proportion. The difference between the lengths a and b is $13.56 - 6.20 = 7.36$. This length, multiplied by 11.25 and divided by 23.25 will give the length to be added to 6.20.

$$\frac{7.36 \times 11.25}{23.25} = 3.55$$

$$6.20 + 3.55 = 9.75$$

The area on the inner side of this line, which is located 12 feet from the inner edge and is 9.75 feet long, should equal 141.3 square feet. $(13.56 + 9.75) \times 12/2 = 139.8$ square feet, which is too small an area.

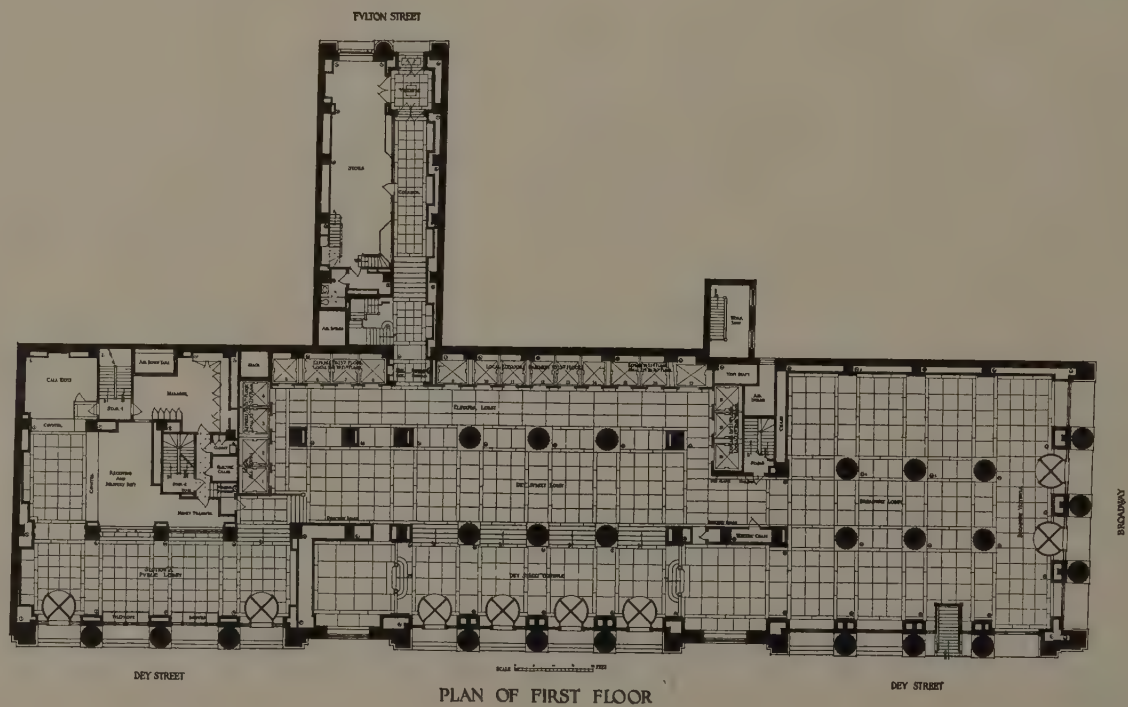
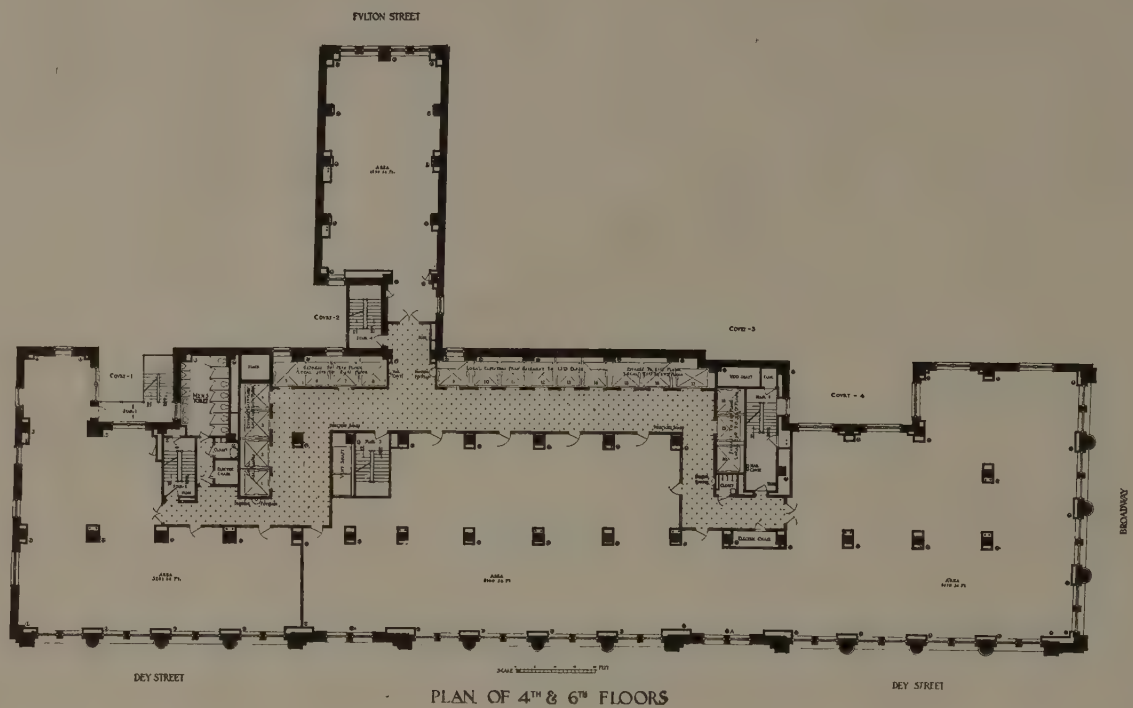
Suppose that the line was taken at a distance of 12.20 feet away from the inner edge. The proportions given above would then become

$$\frac{7.36 \times 11.05}{23.25} = 3.50$$

$$6.20 + 3.50 = 9.70$$

$$(13.56 + 9.70) \times 12.2/2 = 141.8 \text{ square feet.}$$

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This area, while a trifle large, will be considered to be near enough.

The next question to be settled is the location of the centers of gravity of the two trapezoids, one on the inner side of this line and the other on the outer side. Fig. 101 shows a trapezoid, the upper side of which is marked b_1 and the under side b . The altitude is given as d . The distance from the upper side to the center of gravity is marked x_1 and the distance from the lower side is marked x . Using this notation the formulas that will give x_1 and x are:

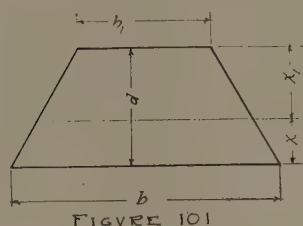


FIGURE 101

$$x = \frac{b + 2b_1}{b + b_1} \times \frac{3}{d}$$

$$x_1 = \frac{b_1 + 2b}{b + b_1} \times \frac{d}{3}$$

Substituting in the formulas it will be found that the

center of gravity of the outer trapezoid is at a distance from the line of zero shear equal to

$$\frac{9.70 + 2 \times 6.20}{6.20 + 9.70} \times \frac{11.05}{3} = 5.12 \text{ feet.}$$

In a similar manner the distance from the line to the center of gravity of the inner trapezoid is found to be 6.44 feet.

The maximum bending is found by subtracting the downward bending due to either the pier or the column from the upward bending due to the soil. The downward bending due to the column is equal to 9.7 feet multiplied by 800,000 pounds, which gives 7,760,000 foot pounds. The upward bending due to the soil is $800,000 \times 6.44 = 5,152,000$ foot pounds. The total moment will be $7,760,000 - 5,152,000 = 2,608,000$ foot pounds. This moment should be checked with that of the pier, and it will be found that they will be approximately equal.

Once the moment is found the area of the steel is found in the customary manner. However, as there are other considerations to be taken up, the checks for shear and the area of steel will be taken up in the next article.

The Telephone and Telegraph Building, New York

Wm. Welles Bosworth, Architect

THE Septizonium of Septimus Severus at the angle of the Palatine Hill in Rome, a building of Classic times, was seven stories high, of superimposed orders. It was composed on its broad side of three great niches. The new Telephone and Telegraph Building at the corner of Broadway and Dey Streets, New York (illustrated in this issue), is composed of nine orders in height and its broad elevation on Dey Street is composed of three bays decorated with the orders and separated by plain undecorated bays. The style of the Telephone and Telegraph Building is Greek, Doric being used for the lower order and Ionic above after the fashion of the Library at Pergamon.

The columns of the bays are spaced so that the two bays nearest the center are wider than the two end bays. This produces a slight sense of curvature in the façade, further emphasized by an actual curvature of the skylines following the precepts of Professor William H. Goodyear of the Brooklyn Institute. A certain vibration has been effected in this way. The square plinths under the columns have been rounded off and each order diminishes in diameter as the building rises, each order also being set back from the one below it. There are three-story heights in the Ionic orders, the two upper stories being joined by metal spandrels, the lower one being separated by a solid base of masonry which gives rigidity to the columns. The offices within are abundantly lighted and the positions of the windows in relation to the interiors are practical and agreeable. The columns projecting beyond the wall surface do not obstruct the view or the light.

The temporary lot lines were determined to allow of a connecting wing to bring circulation through from Fulton

Street. This wing provided offices for the administration which could be lighted on three sides, and produced a tower thirty stories in height and only 33 feet wide. It is surmounted by a little Ionic temple with stepped roof, which supports a gilded bronze figure of Electricity, over twenty feet in height. The contrast with St. Paul's Church steeple and the old fashioned original shop buildings stepping down to Church Street has been dramatically expressed in the lithograph which Joseph Pennell condescended to make before the building had been erected. Plans have been filed for extending this building around the entire block.

The masonry is of fine white granite with solid bronze metal work. There are five stories below grade containing an isolated plant for furnishing heat, light, power, ventilation, refrigeration and vacuum cleaning. The basement is connected with the subway platform and circulation is provided through the basement should the Hudson tubes be connected with Broadway in the future.

The materials of the lobbies are Botticino marble and bronze. The marble is cut from large blocks returning deeply around the corners. The woodwork of the chief executive offices is Italian walnut. The corridors are lined with Alabama marble with mosaic floors of white marble and Alps green base. This same base is used throughout the building. The steel and kalemein work are treated with an antique green bronze effect.

The top of the flag pole is five hundred feet from the ground. The building is entirely occupied by the Telephone Company and their subsidiaries, and the Western Union Telegraph Company.

Legal Decisions of Interest to the Architect

These decisions appear monthly and are edited by Mr. John Simpson, the well-known lawyer.

ACTION FOR PREPARATION OF PLANS.

In an action by an architect for the value of plans prepared for a dwelling house, the defense was that they were only to be paid for if the house was built. The negotiations for the plans were for the most part conducted by the plaintiff and one Houston, a contractor. The question was whether Houston had the necessary authority to make the agreement relied upon. A brief reference to the evidence is necessary. The plaintiff testified that Houston told him the defendant had asked him to inquire of the plaintiff what the cost would be of making a plan for a house the defendant intended to build, and of which he showed him the floor plan. The plaintiff told him the price would be about \$90 or \$95. Houston said he would take it up with the defendant and let the plaintiff know in a few days. He returned in a few days, and said that \$90 was satisfactory to the defendant, and "to go ahead and make up preliminary plans" for the defendant's approval. After these preliminary plans had been made and handed to Houston, and by Houston to the defendant, the plaintiff testified that he went to the defendant's house and discussed them with him and his wife; that the plaintiff was satisfied with the preliminary plans, and said that when he had gone over them would let him know through Houston in a few days; that in a few days Houston came to his office with the same drawings and said that the arrangements were satisfactory, to go ahead with the plans. The plaintiff then completed the plans and turned them over to Houston. Houston testified that after the preliminary plans had been submitted to the defendant he said, "go ahead, I am going to build the house," and "to have the plans completed then;" and he then told the plaintiff what the defendant had said, and the plaintiff then completed the plans. The Oregon Supreme Court held that the trial court properly refused to direct a verdict for the defendant. The submission of the question of authority to the jury resulted in a verdict for the plaintiff, judgment on which was affirmed.—*Wicks vs. Sanborn* (Or.) 159 Pac. 71.

WAIVER OF ARBITRATION CLAUSE.

The Maryland Court of Appeals holds that an owner waived any right under a uniform building contract to arbitrate disagreements with the contractor where he moved into the building in October, and, until shortly before the contractor sued for his balance in January, raised no objection to the amount certified by the architect as due, but appeared to be preparing to pay it and did not suggest arbitration until the following September.—*McEvoy vs. Willard E. Harn Co.* (Md.) 98 Atl. 522.

CONSTRUCTION OF CONTRACT FOR ALTERATIONS.

Under a contract for the alteration and repair of buildings, including excavations, concrete foundations, walls, walks, and flooring, the ripping of partitions and the building of new partitions, the building of a new front, etc., the omission to put in a 6-inch plaster partition inclosing the stairs in the basement was held to be of so slight or unsubstantial character as not to affect the contractor's right of recovery. The contract required the contractor to obtain all permits and pay therefor, and to comply with all building and sanitary laws, and made him responsible for any violations, whether caused by omission in the plans or not. It was held that he was not bound to procure the dismissal of violations filed by the building department, due to the architect's failure to file proper plans to cover

additional work, or those filed by the water department after the completion of the work, by reason of defendant's acts in causing back pressure. The contract called for monthly payments covering a certain percentage of the work done, subject to additions, etc., and provided that upon the architect's certificate the final payment should be made within 90 days from the completion of the work, and should be due when certificates therefor were issued. It was held that the architect's refusal to issue a final certificate after the substantial completion of the work was unreasonable, and excused its non-production as a condition to payment. The contract provided that the "contractor should receive 10 per cent. of the cost of labor, material, superintendence, and expenses by himself" and 5 per cent. of the cost of any work done by his or other subcontractors. It was held that the contractor was entitled to compensation upon the cost of all labor performed by his workmen and superintendents and foreman employed upon his own account and expenses incident thereto, and hence was not entitled to a charge for the time expended by him in superintendence when that was being done by his own superintendents, nor to charges of 10 per cent. upon items of work performed by third parties under arrangements with him, where such parties, though having no written contracts, were in fact subcontractors, nor to an amount received from a subcontractor as a rebate without defendant's consent. Under such contract, providing that no certificate of the architect or any payment under the contract, except the final certificate of payment, should be conclusive evidence of the performance of the contract, the defendant was not estopped by the architect's monthly certificates from questioning the propriety of charges which had been allowed thereby, where it appeared that neither the architect nor the defendant knew that such charges had been allowed.—*Muelenberg vs. Coe*, 160 N. Y. Supp. 581.

RELEASE OF SURETIES—EXCESSIVE PAYMENTS AND CHANGES IN PLANS—INJURIES MUST BE PROVED.

A building contract, made a part of the contractor's surety bond, provided that "payments on the work shall be made from time to time, as the work progresses, upon the architect's certificate that said amounts have become due and at no time until the completion will they be made to exceed 85 per cent. of the value of work finished and in place at the date of each." The payments made did exceed 85 per cent. of the value of the work finished and in place at the date of each payment. Suit was brought by the owner on the bond. The Oklahoma Supreme Court held that, assuming that a compliance with the stipulation was a condition precedent to a right to recover on the bond, a failure to perform it would not defeat a recovery thereon in toto, but only to the extent the defendant had been injured by failure to perform; and the burden was on the surety company to show the extent of its injury. On examination of the evidence, it was held that no such injury appeared, and that the owner was entitled to recover the whole amount of the penal sum of the bond. Upon this point the evidence disclosed that, whenever material was delivered on the ground for use in the building and before the work was finished and in place, the owner would pay the bill for the material at a discount of 2 per cent., which he would divide with the contractor; that the money so paid was taken into consideration and accounted for at the next estimate, and that this was done to accommodate the contractor and to promote the work. The

evidence further disclosed that this was done from time to time as the work progressed, and that when the contractor quit, the construction work and material on the ground amounted to about three-fourths of the total price of the building. But no attempt was made to prove how much material was thus paid for and left on the ground at the time the contractor quit, so that there was no way of determining whether the defendant was injured by this course of conduct or not. The building contract provided that changes in the plans and specifications might be made without limit or notice to the surety company, when agreed to in writing between the parties thereto, and the bond, which was executed upon express conditions therein declared to be precedent to any right

of recovery thereon, provided, among other things: "That when the cost of said changes shall in the aggregate amount to a sum equal to 10 per cent. of the penal sum of this bond, no further changes or alterations shall be agreed upon by the principal and obligee until the consent of the company shall first be obtained thereto." Construing the contract and bond together as one instrument, it was held that the consent of the surety company to changes in the plans to cost in the aggregate in excess of the penal sum of the bond was a condition precedent to the right to make them; but, as the evidence disclosed that the cost of the changes made did not, in the aggregate, equal that sum, the owner was entitled to recover.—*National Surety Co. vs. Haley (Okla.)*, 159 Pac. 292.

The New York State National Bank Albany, N. Y.

Philip Hooker, Architect, 1803.

By J. L. Dykeman.

THE New York State National Bank, or State Bank as it has always been known locally, was organized in 1803, and was the second banking institution in Albany, being preceded by the Albany Bank, organized in 1792. A bronze tablet on the front tells the story that "it is the oldest bank in the city of Albany and the building is the oldest one erected for and continuously used as a banking house in the United States."

In those days a bank charter could only be procured by act of the Legislature, and when such action was taken it was met by spirited opposition, both from the slow and easy going Dutch, who thought themselves possessed of exclusive rights in this field, and the officials of the Albany Bank, who said "it was but a Yankee trick to catch the Dutch." Notwithstanding the fact that its founders had to meet and plan in absolute secrecy, and after many interesting passages in which charges and counter charges of corruption were freely indulged in by both factions, the charter was at last granted, with Governor John Taylor as its first President and John W. Yates as Cashier. So much for the genesis of the institution which to-day exerts such powerful influence over financial matters in that locality.

Its building was begun in May, 1803, with the architect acting as master builder. The contract and specifications were drawn between "the President, Directors and Company of the New York State Bank of the City of Albany, State of New York, and Philip Hooker, Builder," the original of which is still in possession of the bank. It called for a "dwelling house 30' 6" front, 52' deep and 28' high, measured from the water table." A minute description followed, of the banking and directors' rooms, quarters including a drawing room on the second floor, to be occupied by the cashier, and the janitor's apartment in the basement. One interesting clause called for a door from banking room to rear "to be perfectly fireproof and to be covered with XX tin." The contract also read that "the party of the second part shall and will, at his own proper cost and charge, employ or cause to be employed and paid, as many workmen, carpenters, masons, stone-cutters, smiths, painters, glaziers, plumbers, plasterers, cartmen and laborers of every kind as may be required for carrying on said work," and also agreed to complete the contract on or before April 15th, 1804.

The materials used were brick for all outside walls, mahogany, oak, white pine and stucco for the interior. Floors

were of 5" white pine planks. The front was constructed of brick faced with Nyack sandstone for the first story, and brick and sandstone trimmings for the second story and attic. Wrought iron was used for both balconies and shutters and the roof was of tin.

The State Street facade, all that remains, unfortunately, of this fine old building, shows the rare ability of the designer of whom so little is known. Unlike the academy designed twelve years later, this building shows more of the English than the French influence. The urns and relief ornament, in the pediment, which is of stone honestly and gracefully executed, show the influence of the Brothers Adam. The double Palladian motif is rather unusual, although not uncommon in earlier English work, and shows the training and freedom from restraint of this versatile designer. It is most unfortunate, however, that the directors, early in the eighties, consented to the change as noted by the photograph. The golden eagles over the second story windows reflect not only the ability of the carver but they show the purpose to which the building was dedicated. They have been familiar objects to Albany's oldest citizens from earliest memories, and stand to-day as then as a guarantee of the high standing and character of this banking house.

In 1819, Prof. Benjamin Silliman wrote, "I am going to visit Albany to see two remarkable buildings, the Van Rensselaer Manor House and the State Bank." How interesting it would be could we go back through the years and see this rare old front as our doughty Dutch ancestors saw it, standing proudly amongst its many quaint little low Dutch gabled neighbors, whose owners fought so hard to keep it out.

It was in 1853 that the bank passed its first half century of existence and, the charter having expired, the institution was immediately re-organized under its present name as a national bank. Its facade has stood through many years, not only as a monument to its architect and builder, but to the good judgment and appreciation of its directors. This is quite as remarkable and praiseworthy as is the facade itself, when one considers the temptation resulting from the fire in 1860, which nearly destroyed the entire building. Would that others had been as generous and considerate, and to-day we might have those priceless examples of our earliest architectural efforts which have become, instead, the victim of the wrecker called Progress.



NEW YORK STATE NATIONAL BANK, ALBANY, N. Y.

Ph. Hooker, Architect.

Slight changes have been made since its erection in 1803 on account of several disastrous fires. Plates CXCI and CXCI show it as originally designed.

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Editorial

The Profession of Decoration—Advertising

WITHIN the past few years a new profession, or a comparatively new profession, has sprung up in this country, and the decorator is beginning to be of almost as much importance in our homes and in our public buildings as is the architect, and with results which cannot yet be accepted with much satisfaction. It is probable that this is because the profession is still in its infancy, without proper schools or properly trained practitioners, and since the profession is one which is supplementary to architecture and the practice of which can neither improve nor damage to a very great extent the efforts of our architects, it is one which the architectural profession should more seriously consider.

We take it that the function of the decorator is to develop proper color schemes, both for the architecture of the rooms and for the objects which they enclose, and to see that the furniture, hangings, and the rugs, are beautiful in themselves, properly co-ordinated to the architecture of the room and harmonious with the color scheme; and in probably two of these points most decorators succeed. We mean that they select things of excellent quality, arrange them well and keep them in color harmony, but very few of the decorators have any apparent appreciation of what is to the architect the most vital of all the points—the relation of these good qualities with the architecture of the room.

The fault with American work lies in the lack of sympathy between the architect and the decorator, each of whom independently employed starts with more or less definite and preconceived ideas and plans which may or may not work together, and neither of whom is willing to make concessions. Of the two, the architect is by far the best trained and has the clearest vision of his results. Most decorators are unable to visualize their work in advance and in very many cases have fairly well completed their rooms, only to repaint the woodwork, to change the furniture, or to add hangings to complete and round-out color schemes, and there can be in the mind of the architect no question but that he should have some control over the decorator so that his work may not be injured by a misrepresentation or a lack of understanding of his aims. We may even go further and say that half of the decorators don't care what the architect is after. They begin with some preconceived idea as to what might be an amusing room and carry it out regardless of architectural features such as wainscot, cornices and proportions of window openings, and while the architect treats his moldings with considerably thought as to their color, using slight and delicate moldings for a light colored room, bolder and stronger ones for a dark room, the decorator having in mind some preconceived color scheme, deliberately paints, stains or tones the architectural work to fit

in with some "stunt" color scheme or "stunt" arrangement of furniture. Every architect can remember some Georgian room which the decorator has crowded with Italian furniture, or some carefully worked out English oak interior which was painted white and trimmed with mahogany, in defiance of all architectural sentiment and with regard to one thing only—the more or less complete development of the "stunt." The decorators seem to partake of the nature of the dress-makers; they are all striving to be a little ahead of the fashion, trying to do something new rather than to proceed conservatively, and while the architect who has done thirty loft buildings is content to make each one of them a variation of a well known theme, adapting it to the particular problem in hand and improving as best he can upon the architectural style which he feels to be the most satisfactory, the decorator is not content to work in variations of one color scheme or one historic style, but must be always striving for some attention-arresting and violent color combination or for some particular "period" which is unfamiliar, regardless of whether the period developed art objects which were in any way suitable for modern living conditions.

It would seem that the only way in which an architect can secure results which are really correct is to take over the decoration himself and run it as a branch of his own business and yet, with our high ethical standards, accustomed as we are to charging a very moderate percentage of cost for a very great amount of work, we find it hard to reconcile ourselves to the 100% profit the decorator asks for his work, or to the tricky buying and selling which unfortunately are characteristic of too many decorators, including some of the best known in the profession. It is perfectly true that the work of the decorator is valued in hundreds of dollars instead of in thousands, and that much of it is work which cannot be deputed, so that a very much greater percentage than the architect's is necessary for the decorator to make a decent living, yet the architect cannot readily reconcile himself to the 33 1-3%, 50% or 100% profits which are common among decorators, and working as architects do with clients' best interests in mind, rather than their own, the profession prefers to see its work ruined rather than to take matters into its own hands at so exorbitant a scale. We are at a loss to suggest what solution will eventually be found, but we cannot believe that decoration can be seriously regarded as a profession while it is recruited from the ranks of the dramatic profession, from gentlemen young men who have no other way to make a living and from young ladies who "go in for decorating" and yet the great majority of the successful decorators (financially) are of just this type of people who enter the business from the top and not the bottom. The architect who starts life with a "pull" succeeds if he has got the stuff; he fails after he is given one or two jobs because of friendship and falls down on them.

People don't seem to realize that training is as necessary to the decorator as it is to the architect and taste or appearance of taste alone, is not the sole requisite to success, and the minority of the profession which includes the capable and well trained decorators suffer because of the faults of the majority.

Decorators of taste and training, with a real understanding of architecture, are godsend to the architect; the others are—well, they are not godsent.

SHOULD technical and professional men ignore the advertising columns of their own publications and of the popular press? asks Mr. S. M. Fechheimer, Editor of *Modern Building*. Many a man, leaning back on a false conception of ethics, would answer a very positive "Yes." At the same time he would be showing positively by the clothes that he

wore and the food that he ate that he was influenced by advertising in the ordinary affairs of life.

The man to-day who would advance with the rapid development of his profession should keep in touch with what the manufacturers of products he uses are doing. Good advertising to-day no longer savors of the old-style circus methods of misstatements and exaggerated claims. The publicity of the progressive manufacturer is educational, and full of valuable and useful information.

Particularly are these conditions true in the building field. Improvements in construction, equipment and finishing of buildings are appearing with such rapidity that the architect, engineer and contractor must keep in touch with what the manufacturers of building products are doing. The manufacturer, on his part, is anxious to present his information in the way that will be most satisfactory to the man who specifies and uses his product. Printed announcements are published in magazines and catalogs and circulars are distributed; yet, unfortunately, a large percentage of these efforts is wasted.

The aloofness of technical and professional men to all things savoring of publicity should stop. They ought to co-operate with the manufacturer just as the manufacturer is trying in every way to co-operate with them. Successful building demands the co-working of all the forces entering into it. The architect, the engineer, the contractor, the owner and the manufacturer—all are important factors in securing perfect results. Each one should sincerely work with the others, and not assume an attitude of suspicion and distrust.

There is another important reason why the architect and builder should co-operate with the progressive manufacturer who is conducting publicity campaigns in magazines. These publications are read by the general public who could not be reached directly to any great extent by professional men. This educational advertising is a powerful influence in the development of improved methods of building. Thus, the manufacturer is educating the public to better standards of building and is promoting the same ideals as the leaders in the architectural and construction field.

Many progressive architects and builders have appreciated these facts and have profited by the improved methods developed by commercial institutions. Let us have, however, a universal co-operation on all sides, an open-mindedness on the part of the architect to receive useful information, and a sincere effort on the part of the manufacturer to provide really educational publicity.

BOOK REVIEW.

PARKS, THEIR DESIGN, EQUIPMENT AND USE. By George Burnap, B. S., M. A., Landscape Architect of Public Buildings and Grounds, Washington, D. C. Large 8vo, decorated cloth. Net, \$6.00. J. B. Lippincott Company, Publishers. Philadelphia. The volume is primarily for landscape architects and executives having the development of parks in charge, but it will also appeal directly to every man and woman who has any civic enthusiasm, and to all who delight in the problems of bringing nature to the service of man.

No one had a better right to write this book and in a real tone of authority, than had George Burnap, he who is in charge of that landscape work at Washington which is attracting the attention of professionals and amateurs all over the world. This is the first volume issued of the "Landscape Architecture Series," for which three other volumes are now being prepared by the same author. The illustrations are excellent: the parks of England, Germany, Austria, France, and North and South America have been the prey of Mr. Burnap's camera. From this the observer obtains indeed an education in the tastes and ways of life of various peoples, as indeed in no sphere is the inner life of a people so poignantly revealed as in the manner of forming and the way they use their parks. It is seen that we in America have some peculiar park-defects. Our love of hero worship is expressed in ruining many a site of real landscape possibilities by erecting a meaningless bronze of a uniformed general or a frock coated philanthropist.